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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/766,010

01/29/2004

Kristy A. Campbell

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2009

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EXAMINER

NGUYEN, TAN

ART UNIT

PAPER NUMBER

2827

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/766,010	CAMPBELL ET AL.	
	Examiner	Art Unit	
	Tan T. Nguyen	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-28 and 39-45 is/are allowed.
- 6) ☒ Claim(s) 29 and 31-37 is/are rejected.
- 7) ☒ Claim(s) 30-38 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>03/04; 06/04</u> . | 6) <input type="checkbox"/> Other: ____ |

1. The Information Disclosure Statements submitted by Applicant on March 29, 2004 and June 2, 2004 have been received and fully considered.

2. The disclosure is objected to because of the following informalities:

In page 12, paragraph [0029], line 1, the number "18" should be changed to --16--.

Appropriate correction is required.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 29, 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Khan (U.S. Patent No. 5,905,673).

Khan discloses in claim 1 an integrated circuit comprising an array of memory cells, each memory cell capable of holding a voltage corresponding to a plurality of bits; programming circuits connected to the memory cell array and voltage generation circuits simultaneously and independently programming voltages in a selected plurality of the memory cells; and in claim 9 a method of programming a memory cell array in an integrated circuit, each memory cell in the array capable of holding a voltage corresponding to a plurality of bits. The voltage that the memory cell capable of holding would be considered as the claimed energy. In claim 20, Khan recites an integrated circuit comprising an array of memory cells, each memory cell capable of holding a voltage corresponding to a plurality of bits; sense amplifier circuits connected to the memory cell array and reading voltage circuits, the sense amplifier circuits

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simultaneously reading voltages in a selected plurality of the memory cells to determine a corresponding plurality of bits in each of the plurality of memory cells.

Regarding claim 37, it is conventional that the read voltages applied to the selected memory cells would not change the programming state of the selected memory cells.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 29, 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawamura (U.S. Patent No. 6,614,686).

Kawamura discloses in Figure 2 (1) a non-volatile memory cell is programmed by injecting hot electrons into the second trapping gate region [TSD2] (column 2, lines 30-35). As the hot electrons being injected into the trapping gate, the memory cell would be considered as absorbing energy. Kawamura discloses when one word line is selected, four bit data in eight cell transistors can be simultaneously read out to page buffer (column 8, lines 48-57).

Regarding claim 37, it is conventional that the read voltages applied to the selected memory cells would not change the programming state of the selected memory cells.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khan, Kawamura in view of Perner (U.S. Patent No. 6,678,200).

See description of Khan in paragraph 4, and description of Kawamura in paragraph 5, supra. Khan and Kawamura do not disclose the types of memory cells as claimed in claims 31-36.

Perner discloses a MRAM device having a number of MRAM blocks [101, 202, 203] can be read simultaneously (column 4, lines 39-40).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the memory device of Khan or Kawamura by providing the appropriate memory type.

The rationale is as follows: A person of ordinary skill in the art would have been motivated to use the appropriate memory type to obtain maximum efficiency of the memory device.

8. Claims 30, 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 1-28, 39-45 are allowed.

The prior art fails to show or suggest the limitation of a fast Fourier transform analysis circuit electrically coupled to a conductor line, which is electrically coupled to each of a plurality of memory cells.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

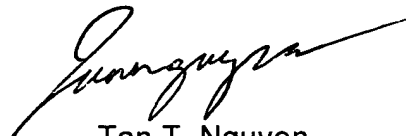
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Kimura et al., Numata et al. and Morikawa are cited to show memory devices having plurality of memory cells being read simultaneously.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan T. Nguyen whose telephone number is (571) 272-1789. The examiner can normally be reached on Monday to Friday from 07:00 AM to 03:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian, can be reached at (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tan T. Nguyen
Primary Examiner
Art Unit 2827
April 12, 2007